

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
26 May 2005 (26.05.2005)

PCT

(10) International Publication Number  
**WO 2005/046735 A1**

(51) International Patent Classification<sup>7</sup>: **A61K 49/00**,  
C12Q 1/00, G01N 21/76

(21) International Application Number:  
PCT/US2004/037314

(22) International Filing Date:  
8 November 2004 (08.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/518,605 7 November 2003 (07.11.2003) US

(71) Applicant (for all designated States except US): **NEW-  
PORT INSTRUMENTS** [US/US]; 5648 Toyon Road, San  
Diego, CA 92115 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LEIF, Robert, C.**  
[US/US]; 5648 Toyon Road, San Diego, CA 92115 (US).  
**YANG, Sean** [US/US]; 11012 Delphinus Way, San Diego,  
CA 92126 (US). **VALLARINO, Lidia** [US/US]; Depart-  
ment of Chemistry, Virginia Commonwealth University,  
1001 W. Main Street, Box 2006, Richmond, VA 23284-  
2006 (US).

(74) Agents: **NATH, Gary, M.** et al.; Nath & Associates PLLC,  
1030 15th Street N.W., 6th Floor, Washington, DC 20005-  
1503 (US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE,  
SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: A REAGENT SYSTEM AND METHOD FOR MODIFYING THE LUMINESCENCE OF LANTHANIDE(III)  
MACROCYCLIC COMPLEXES

(57) Abstract: Disclosed is a spectrofluorimetrically detectable luminescent composition consisting essentially of at least one en-  
ergy transfer acceptor lanthanide(III) complex having an emission spectrum maximum in the range from 300 to 2000 nanometers  
and a luminescence-enhancing amount of at least one energy transfer donor selected from the group consisting of a fluorophore, a  
lumiphore, an organic compound, a salt of an organic ion, a metal ion, a metal ion complex, or a combination thereof. Such energy  
transfer donor enhances the luminescence of at least one energy transfer acceptor lanthanide(III) complex, with the conditions that  
the emission spectrum of any energy transfer donor differs from that of its energy transfer acceptor lanthanide(III) complex; and such  
energy transfer donor can be dissolved to form a unitary solution in a solvent having an evaporation rate at least as great as that of  
water.



**WO 2005/046735 A1**